

Maximum Permissible Exposure (MPE)

Standard Applicable

According to \$1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for Maximum Permissive Exposure (MPE)

| Frequency Range | Electric Field | Magnetic Field | Power Density | Averaging Time | | |
|---|----------------|----------------|------------------------|----------------|--|--|
| (MHz) | Strength (V/m) | Strength (A/m) | (mW/cm ²) | (minute) | | |
| Limits for General Population/Uncontrolled Exposure | | | | | | |
| 0.3-1.34 | 614 | 1.63 | *(100) | 30 | | |
| 1.34-30 | 824/f | 2.19/f | *(180/f ²) | 30 | | |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 | | |
| 300-1500 | / | / | F/1500 | 30 | | |
| 1500-15000 | / | / | 1.0 | 30 | | |

F = frequency in MHz

* = Plane-wave equipment power density



Maximum Permissible Exposure (MPE) Evaluation

BT mode:

Maximum Permissible Exposure (MPE) Evaluation: The worst case of Average power **Power measurement:** refer to Part15.247 report for details.

Tune-Up Power:

| Frequency Range: | 2402 – 2480MHz |
|------------------|------------------|
| Tune-Up Power: | 3dBm +/- 1.0 dBm |
| Antenna Gain: | 3.45dBi |

Tune-Up power Tolerance: 1dB

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

S=PG/4 π R²

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

| Maximum output power at antenna input terminal: | 3 | (dBm) |
|---|-------------|-----------|
| Maximum output power at antenna input terminal: | 1.995262315 | (mW) |
| Tune-Up power Tolerance: | 1 | dB |
| Duty cycle: | 100 | (%) |
| Maximum Pav : | 2.511886432 | (mW) |
| Antenna gain (typical): | 3.45 | (dBi) |
| Maximum antenna gain: | 2.21309471 | (numeric) |
| Prediction distance: | 20 | (cm) |
| | | |
| MPE limit for uncontrolled exposure at prediction | 1 | (mW/cm^2) |
| Power density at predication frequency at 20 (cm) | 0.0011065 | (mW/cm^2) |

Measurement Result:

The worst power density is $0.0011065 \text{ mW/cm}^2$ which is less than 1 mW/cm^2 .

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